We claim:

1. A solid electrolyte cell comprising a solid electrolyte body having a first side and a second side, a first electrode on the first side of the body, the first side of the body having a porous surface of greater porosity than an underlying matrix of the body, the porous surface comprising a plurality of recesses, the first electrode substantially covering the first side of the body, the first electrode comprising a thin layer of conductive catalytic material extending into the recesses to mechanically lock the layer to the porous surface, and a second electrode on the second side of the body.

2. The cell of claim 1 wherein the porous surface of the body comprises a plurality of substantially spherical recesses and further comprises a small ball of solid electrolyte at the bottom of each of the substantially spherical recesses.

3. The cell of claim 1 wherein the cell is a part of a lambda oxygen sensor installed in the exhaust system of an internal combustion engine.

4. The cell of claim 1 wherein the cell is a part of an oxygen generator.

5. The cell of claim 1 wherein the cell is formed as a thimble, the porous surface being the outside of the thimble.

6. The cell of claim 5 wherein the layer is plated on the porous surface at a substantially uniform thickness from a closed axial end of the thimble to near an open axial end of the thimble.

7. The cell of claim 1 wherein the solid electrolyte is a yttria-stabilized zirconia.

8. The cell of claim 1 wherein the first and second electrodes are formed of a material selected from the group consisting of platinum, rhodium and palladium.

9. The cell of claim 8 wherein the first and second electrodes are formed of platinum.

10. A method of forming a solid electrolyte cell comprising forming a solid electrolyte body, forming a porous layer on a first surface of the body, activating the porous layer on the first surface of the body to form a plurality of growth points for a conductive layer on the first surface, growing a first electrode by electroless plating of a conductive layer on the activated porous layer on the first surface of the body, and forming a second electrode on a second surface of the body.

11. The method of claim 10 wherein the step of forming a solid electrolyte body comprises forming a body which is impervious to air.

12. The method of claim 10 wherein activating the porous layer on the first surface comprises wicking a metal salt carried by a liquid into the porous layer.

13. The method of claim 10 wherein the body is formed as a thimble with an outer surface and an inner surface, the first electrode being formed on the outer surface.

14. The method of claim 10 wherein growing a first electrode comprises immersion of the porous layer on the first surface in an unstable solution of a salt of a metal.

15. The method of claim 14 wherein the unstable solution further comprises a reducing agent

16. The method of claim 15 wherein the reducing agent comprises hydrazine.

17. A method of forming a coating of a precious metal on a ceramic substrate, the method comprising a step of forming a ceramic substrate having pores at a surface of the

substrate; a step of forming a solution of a salt of a first metal in an organic solvent which wets the ceramic; a step of forming nucleation sites on the surface of the substrate, said step of forming nucleation sites including wicking the solution into the pores at the surface of the substrate; and thereafter an electroless plating step of plating the precious metal onto the surface from an aqueous plating bath.

18. The method of claim 15 wherein the organic solvent is acetone.

19. The method of claim 15 wherein the first metal and the precious metal are the same.

20. The method of claim 15 including a step, after wicking the solution into the pores at the surface of the substrate, of heating the substrate to drive off the solvent and reduce the salt to a 0.01 to 0.5 micron layer of the first metal with numerous unplated areas.

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